NEW JERSEY'S HIGHWAY PROBLEM

By

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The New Jersey Citizens Committee for Equitable Highway Taxation

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The world's heaviest concentration of automobile and truck traffic pours over New Jersey's highways every day.

Many of our state highways normally have an average daily flow of more than 40,000 vehicles, of which about one-fifth are trucks, and U.S. Route 1 carries an average of 80,000 vehicles a day near Newark. More than 9,700 trailer-trucks alone were counted recently during a 24-hour period on Route 1, outside Newark. 1/

The density of traffic on all New Jersey's highways, streets and roads is four times as great as the average throughout the nation. 1/

Most of our state highways were built when daily volumes were less than half of what they are today.

Most of our highways also were built when a truck weighing 30,000 pounds was termed a boxcar. Today, 30,000 pounds is common. On the important arteries, one out of every five trucks weighs more than 40,000 pounds and two out of every five weigh more than 20,000 pounds. 1/

On top of all this is the fact that New Jersey's highway revenues are falling far short of road requirements.

State highway officials say these funds are now more than $1½ billion behind what is now required to meet present needs and that we are falling further behind each year.

As in most states, New Jersey's highway situation undoubtedly will get worse before it gets better. But it cannot be allowed to get much worse. The present condition of our highways has a costly effect on the operation of all motor vehicles and on the entire economy of the state.

The way to a sound program of correction has been pointed out by Thomas H. MacDonald, the former Commissioner of the U. S. Bureau of Public Roads: "The many uncertainties and the many attempts to exploit our highways and highway traffic can be withstood by the power that lies in an informed public opinion."

Sign worries Director concentrations of autos with and truck traffic boom over New Jersey's highways every day.

Many of our state highways actually bore an average daily flow of more than 50,000 vehicles, of which about one-fifth are trucks, and U.S. Route 1 carries an average of 80,000 vehicles on a busy day. More than 4,000 tractor-trucks also have operated recently during a Labour period on Route 1, pointing Commissioner.

The family of traffic on all New Jersey's highways, already and trucks is very close on great as the average throughout the nation.

Most of our state highways were built when daily volume were less than half of what they are today.

Most of our highways also were built when a truck weighing 20,000 pounds was termed a heavy. Today, 20,000 pounds is normal. On the important arteries one out of every five trucks weighs than 40,000 pounds and two out of every five weigh more than 20,000 pounds.

On top of all this is the fact that New Jersey's highway revenues are failing far short of road requirements.

State highway officials say there funds are now more than $15 million behind. It is now required to meet present needs and they are falling increasingly behind each year.

As is more obvious, New Jersey's highway situation undoubtedly will get worse before it gets better. But it cannot be allowed to get much worse. The present conditions of our highways has a costly effect on the operation of all motor vehicles and on the entire economy of this state.

The way to a sound program of correction has been pointed out by Theodore R. Sproegel, the former Commissioner of the U. S. Bureau of Public Roads. This study necessitates and the many attempts to modernize our highways and highway traffic can be withstood by the power that lies in an informed public opinion.

The N. J. Conference of AAA Automobile Clubs is vitally concerned with the deterioration of our once-prized highway system and with the lack of public understanding of the problem. The Conference therefore presents this report in order to:

1) Acquaint the public with the facts concerning New Jersey's road needs and road finances;

2) Gain the interest of both the public and the legislature, who must take the necessary corrective action, and,

3) Present possible solutions to New Jersey's critical highway problems.

Highway Deficiencies

It would cost New Jersey almost two and a half billion dollars to provide a road network capable of meeting traffic demands in 1964.

This is a minimum estimate. It represents the amount the State Highway Department and the county and municipal road departments would have to spend over a 10-year period to correct all the existing flaws in New Jersey's roads and to keep pace with increasing road needs during the 10 years. These costs would not include outlays for maintenance, administration, policing, lighting, etc.

Here are the minimum, total 10-year correction costs for each road system:

State highway system	$1,983,570,000 2/
County road system	314,800,000 3/
Municipal street system	183,500,000 3/
	$2,481,870,000

(In the past two years, correction costs for the State highway system have risen $535,000,000.)

Here's what these expenditures would be for:

1) Construction of new roads and bridges.

2) Widening and straightening of existing roads and reduction of grades where possible.

3) Replacement, repair or construction of road surfaces.

4) Improvement of sub-grades to provide greater support.

5) Strengthening and widening of bridges.

6) Elimination of hazardous grade crossings.

7) Correction of safety hazards inherent in the roads or in the adjacent areas.

The Causes

New Jersey fell behind because no one could accurately foresee, let alone plan for, the tremendous changes that would take place in traffic patterns and road costs:

1) The number of automobiles registered in New Jersey rose from 942,103 in 1940 to 1,501,219 in 1952, an increase of 59.3 per cent.[4/]

2) The number of trucks and trailer-trucks registered in New Jersey increased from 121,852 in 1940 to 196,436 in 1952, a 61.2 per cent rise.[5/]

3) The number of trailer-trucks registered in New Jersey rose from 3,900 in 1940 to 11,500 in 1952, a 195 per cent jump.[6/] (And each of these trailer-trucks takes up as much room on the road as from three to eight automobiles, according to the U. S. Bureau of Public Roads.)

4) These trailer-trucks are getting much heavier, too; in 1940, their average gross (fully loaded) weight was about 40,000 pounds -- today they average 50,200 pounds.[6/]

5) The cost of building a mile of state highway has increased from an average of $135,600 in 1936-40 to $567,000 today.[7/] (The Trenton Expressway, for example, cost $4,400,000 a mile.)

6) The cost of maintaining a mile of state highway increased from an average of $1,146 in 1940 to $2,834 in 1950.[7/]

The last two items are particularly significant. While construction costs were rising 318 per cent from 1936-40 to today, available highway funds rose only 70 per cent.

In addition, since 1940 per-mile maintenance costs rose 147 per cent, while highway revenues increased only 57 per cent.

These traffic and cost increases alone would have given New Jersey a highway headache. But accompanying them from the mid-1930's to the end of World War II was an enforced hiatus in highway work, brought on first by the depression, then by the war.

For nearly 15 years, New Jersey did not have the money or the material to properly meet its needs.

So New Jersey is faced today with a $2½ billion highway-improvement job.

Future Highway Expenditures

Not quite all of this $2½ billion represents additional expenditures. For New Jersey already is spending something to improve its highways.

The State Highway Department, for example, has programmed more than $40 million for construction and reconstruction this year.[7] At this rate, the State alone would spend approximately $400 million during the next decade in highway-improvement work, or only about 20 per cent of the amount needed in that period to meet modern needs.

Local governments -- counties and municipalities -- are expected to spend roughly $10.5 million this year for improvement of their roads and streets and thus may spend $105 million from now until 1964.[8]

> This still leaves an additional highway outlay of nearly $1,977,000,000 required to bring all New Jersey's roadways up to date during the next 10 years.

This would require an increase of almost $198,000,000 in New Jersey's road expenditures every year for the next decade.

Since New Jersey will spend only about $118,000,000 this year on its highways, streets and roads, total road outlays would have to be considerably more than doubled to pay for this highway-improvement program and to keep up with the routine necessities, such as maintenance, administration, debt service and state police.

Here, for each level of government, are the estimated 1954 road expenditures, the additional expenditures required to correct deficiencies and the total expenditures that would be required each year for the next 10 years:

	Existing Road Mileage On System	Estimated 1954 Expenditures	Added Annual Correction Costs	Total Annual Expenditures Required
State	1,761	$ 62,400,000 9/	$158,400,000	$220,800,000
County.....	6,629	15,144,000 10/	28,700,000	43,844,000
Municipal.....	19,850	40,737,000 10/	10,900,000	51,637,000
	28,240	$118,281,000 11/	$198,000,000 12/	$316,281,000

To amplify this, New Jersey currently spends approximately $118 million for construction and reconstruction, maintenance, administration, policing, street lighting and miscellaneous items associated with highways. The $198 million needed to correct deficiencies is in addition to these current expenditures. New Jersey, therefore, would have to spend a total of $316 million a year between 1954 and 1964 to continue normal expenditures as well as modernize its road systems.

Additional Highway Revenues Required

Despite the fact that New Jersey would have to increase its annual highway expenditures by $198 million to meet this 10-year program, it would not have to increase its annual highway revenues by $198 million, because present sources of highway revenue will continue to produce more each year, without any rate increases.

Revenues from the State's motor fuel tax, for example, have increased at an average rate of $2½ million a year for the past six years, although the tax rate has remained the same. Revenues from registration fees and drivers' license fees also have increased steadily.

Based on predictions of future motor vehicle registrations by the State Highway Department, New Jersey's existing highway taxes can be expected to produce an average of $123,635,000 a year during the next 10 years. 13/ In addition, highway aid from the Federal government will provide at least $9,500,000 annually.

New Jersey, therefore, can expect to collect an average of about $133,100,000 a year in State highway revenues during the coming decade.

These revenues are available for state highway work and for state aid to local governments.

In addition, a sizeable share of the money needed for local improvements will be furnished, as it has been in the past, by local taxpayers -- primarily property owners.

In 1952, local revenue sources furnished approximately $37,000,000 for local road costs.[14/] This year they will furnish close to $40,000,000.[15/]

With such payments from local taxpayers plus the funds collected from highway users and the Federal government, New Jersey could have approximately $173,000,000 a year for state and local road purposes during the coming decade.

But more than $316,000,000 would be needed.

New Jersey, therefore, faces a shortage of about $143,000,000 in the amount required each year for the next 10 years to bring its road system up to date.

What Is Practical?

New Jersey is so far behind in its road work that the additional funds needed to catch up are beyond immediate prospect.

But part of these additional funds can be raised. It would be relatively simple and inexpensive to raise from $20 to $30 million a year almost immediately.

Other states have done it. Maryland two years ago increased its highway user taxes to finance a special highway-improvement program that will cost about $50,000,000 a year. Ohio's legislature passed a series of highway tax increases in 1953 that will produce more than $40,000,000 a year in added income. New York currently is studying official recommendations to boost highway-tax revenues by approximately $70,000,000 annually. And in Pennsylvania, the State highway director has asked for an increase of $50,000,000 a year in revenues for the state highway system alone.

How To Raise Revenues

Here are the five chief methods used by other states to provide money for highways:

1) Earmark all highway revenues for highway purposes.

2) Issue highway bonds, i.e., borrow the money.

3) Create or expand toll road facilities.

4) Increase local property tax rates.

5) Increase highway-user taxes.

Let's look at each of these.

Earmarking

New Jersey's present state constitution bans the dedication of almost every state tax revenue for any specific purpose: practically everything goes into the State's general fund.

This practice (21 other states do it, too) has led to the charge that New Jersey "diverts" its highway revenues, that is, spends less on its highways than it collects in taxes paid by its highway users. The so-called "anti-diversionists" also claim that if New Jersey did not divert its highway revenues it would not have to raise any more money for highways.

In the state as a whole, more money is spent on highways, streets and roads than is collected from highway users. This year, for example, New Jersey's state and local governments will spend an estimated $118,000,000 for road purposes; revenues from highway users will total about $100,000,000.[16/] It is true, however, that the state highway department alone spends less than it collected.

If New Jersey did amend its constitution to permit earmarking of highway revenues, the State's general fund would automatically be reduced by several million dollars. Opponents of an anti-diversion amendment contend that if this happened, some other tax would have to be increased to make up the difference.

However, the dedication of highway income would not of itself solve New Jersey's highway problems. Pennsylvania and Ohio earmark highway revenues but still

find it necessary to raise additional highway money to meet pressing needs.

Highway Bonds

New Jersey could build all the new roads it needs and modernize all its existing roads in a very short time by merely borrowing the money.

But:

1) Interest charges over long amortization periods could be burdensome;

2) Many states are still paying off bonds on highways that have long since become deficient, and,

3) In the final analysis, it is the state's highway users who generally have to pay back highway loans, usually in the form of increased highway tax rates, sometimes through reductions in allotments for routine maintenance expenditures.

Toll Roads

The growing belief that toll roads are the cure-all for the nation's highway ills is not borne out by experience. Engineering News Record, an authoritative publication which speaks universally for construction and highway authorities, states categorically that toll roads are not the answer to America's highway problems.

Revenues earned by toll roads are not turned back into state and local road funds.

The only benefit derived by road departments from toll roads is, therefore, at best, indirect; certain local road problems may be eased because some traffic moves over to the toll road. Moreover, it has been the practice of toll road authorities to recruit their engineering personnel from existing state highway departments, thereby leaving many such departments undermanned in planning and supervisory skills.

Even New Jersey's highly profitable Turnpike has done virtually nothing to reduce New Jersey's general road deficiencies or the cost of correcting them. For example, one of the purposes of the Turnpike was to ease congestion on Route 1, near Newark. In 1950, that stretch of highway was carrying 79,250 vehicles a day. In 1953, after a year's operation of the Turnpike, the same section of Route 1, was

carrying 80,554 vehicles a day![17/] The hoped for relief, clearly has not developed.

Toll roads also are expensive to those who use them, despite some savings in fuel, depreciation and time costs. The passenger car toll over the full length of the New Jersey Turnpike is the equivalent of a 26-cent-a-gallon fuel tax, in addition to the existing three-cent-a-gallon state gasoline tax.[18/] This toll also costs automobile owners approximately six times as much as big-truck owners in terms of vehicle weight and mileage.[19/]

Property Taxes

New Jersey's property owners long have been complaining that they have to pay too great a share of the costs of local roads and streets.

They are right.

There are two general sources of revenue for local roads and streets: highway aid from the state's general fund and income raised locally, primarily from property owners. (The local governments also receive income from bus franchise taxes, parking meters and traffic fines; these are not earmarked for road purposes.)

The state aid is set by law as a maximum of $9,155,000 a year for all counties and $6,820,000 a year for all municipalities, although it has seldom reached these amounts.[20/] The two revenues remain the same regardless of the highway-user revenues the state collects.

The difference between what the local governments have to spend on their roads and streets and what they receive in state highway aid is made up by local taxpayers. In practice, this means the local taxpayers pay two or three times as much as the state for local roads.

The local taxpayers' share of New Jersey's local road costs is greater than the share assigned to property owners in almost every other state.

Their share also is considerably greater than the share believed reasonable by any one of several impartial tax surveys.

And their share is increasing steadily.

In 1948, local taxpayers furnished approximately 68 per cent of the $44,419,000 spent on county and municipal roadways. In 1951, when the counties and municipalities spent $47,298,000, local taxpayers supplied 69.2 per cent. And this year, they will put up 71 per cent of the more than $55,000,000 that will be spent on local roads and streets. 21/

Six years ago, local taxpayers paid $30,200,000 for local roads. This year they will pay nearly $40,000,000.

The most serious overcharges are levelled against property owners in the municipalities. In 1952, these units spent $37,169,000 on their streets; local taxes furnish almost $32,000,000 of this, or 86.5 per cent. 21/ This year local taxes will provide almost 84 per cent of the costs of municipal streets -- $34,000,000 out of $40,700,000.

If the saturation point hasn't already been reached, it lies dead ahead. An increase in state highway aid to local governments was recommended by the State Tax Policy Commissioner four years ago. Not only has this increase not materialized, but property owners since that time have been compelled to increase their payments for local roads an average of nearly $3,000,000 a year.

Highway-User Taxes.

The logical, practical and equitable means of raising additional highway revenues in New Jersey is an increase in taxes levied for highway use.

New Jersey currently has three such taxes:

1) A tax on motor fuel of three cents a gallon, which is included in the price of fuel at the pump.

2) A fee for motor vehicle license plates ranging from $10 for an automobile to $360 for the heaviest trailer-truck.

3) A three-dollar fee for a driver's license.

The total revenues from these three highway-user charges will be approximately $100,000,000 this year ($48,723,000 from the fuel tax, $51,623,000 from registration and license fees).

What Do User Taxes Cost?

The basic highway-user taxes -- gasoline tax and registration fee -- cost the owner of an average New Jersey automobile about $28 a year. The same levies cost the owner of a 30-ton tractor-semitrailer about $700 a year. (Both the truck driver and the motorist pay the same for a driver's license.)

Total annual highway-user taxes for average vehicles in New Jersey are: 22/

Type of Vehicle	Loaded Weight	Average Annual Mileage in N.J.	Fuel Tax	Average Regist. Fee	Total Taxes
Automobile	3,480 lbs.	8,100 mi.	$ 14.96	$ 12.80	$ 27.76
Panel Truck	4,770 "	8,300 "	18.45	26.35	44.80
Stake Truck	14,850 "	14,000 "	46.66	68.51	115.17
Van Truck	26,750 "	23,000 "	98.57	140.05	238.62
Tractor-Semi	44,600 "	30,500 "	182.99	227.14	410.13
Tractor-Semi	59,700 "	34,000 "	339.99	348.77	688.76

New Jersey farm trucks get special reductions in their user taxes (as do farm trucks in 18 states) because most of their mileage is driven on farm property and because generally they are not loaded to capacity. (Bus companies that have paid local franchise taxes are given complete refunds on the fuel taxes paid on their vehicles.)

How Do New Jersey's User Taxes Compare With Other States?

Highway-user taxes on all New Jersey vehicles except the lightest trucks are the lowest in the nation.

Not only are truck registration fees well below average, but New Jersey's three-cent gasoline tax is the nation's smallest and is 2½ cents below the national average.

Here are New Jersey's national rankings on total highway taxes paid by six different vehicles, according to a survey by a New York legislative committee: 23/

Type of Vehicle	Loaded Weight	No. of States With Higher Tax Than New Jersey
Automobile	3,400 lbs.	47
Pick-up Truck	6,000 "	41
Stake Truck	16,000 "	47
Van Truck	25,000 "	47
Tractor-Semi	40,000 "	47
Tractor-Semi	60,000 "	37 (*)

(* -- Only 38 states permit vehicles weighing 60,000 pounds.)

New Jersey's taxes on the 40,000-pound vehicle are $568 below the national average; on the 60,000-pound rig, they are $1,045 below the national average.

And here's how New Jersey's taxes on the 40,000-pound tractor-semitrailer compare with taxes on the same vehicle in neighboring states:

1) New York charges it $670 more than New Jersey
2) Pennsylvania charges it $290 more
3) Connecticut and Maryland each charges it $320 more, and
4) Delaware, with the nation's second lowest taxes on this rig, still charges it $115 more than New Jersey.

How Do New Jersey's User Taxes Compare With Each Other?

Under New Jersey's present highway-tax schedule, an automobile owner has to pay 2½ times as much as the owner of a 30-ton trailer-truck for the same use of New Jersey's roads.

Or, to put it another way, the trucker can pay $4 in taxes for the same amount of road use, on a weight and mile basis, that would cost the automobile owner $10.

The unit of road use that is used to compare vehicle taxes is the ton-mile, which represents the movement of one ton of vehicle weight along a mile of highway.

The ton-mile unit has become the generally accepted measurement of highway use because it is the easiest and most accurate means of taking both vehicle weight and vehicle mileage into account.

It works this way. A two-ton automobile, driven 50 miles, accumulates 100 ton-miles of road use. And a 20-ton truck driven 5 miles also accumulates 100 ton-miles of road use.

The ton-mile standard makes no attempt to measure the benefit a vehicle derives from a highway or the damage a vehicle may do to the highway. It indicates only how much <u>use</u> a vehicle gets out of the highway.

The average New Jersey automobile, for example, weighs 1.74 tons and is driven 8,100 miles a year, for a total ton-mileage of 14,094. Its fuel taxes and

registration fees are $27.76.

The automobile owner, therefore, is paying at the rate of 19.7 cents per 100 ton-miles of road use.

The average top-weight trailer-truck in New Jersey has a gross (fully loaded) weight of 29.85 tons and is driven 34,000 miles a year in New Jersey, for a total ton-mileage of 778,056 (including some mileage driven empty). Its total fuel taxes and registration fees are $688.76.

The heavy-truck owner, therefore, is paying at the rate of 8.9 cents per 100 ton-miles of road use.

Here are the annual highway-user taxes of the same vehicles shown on page 11 in terms of ton-mileage: 24/

Type of Vehicle	Loaded Weight	Total User Taxes	User Taxes Per 100 Ton-Miles
Automobile	3,480 lbs.	$ 27.76	19.70¢
Panel Truck	4,770 "	44.80	27.90¢
Stake Truck	14,850 "	115.17	14.37¢
Van Truck	26,750 "	238.62	10.47¢
Tractor-Semi	44,800 "	410.13	7.89¢
Tractor-Semi	59,700 "	688.76	8.85¢

Collectively, as well as individually, the heavy-truck operators are allowed by law to avoid a large part of their share of the taxes paid for the use of our roads.

The owners of all trucks in New Jersey weighing more than 18,000 pounds loaded pay not quite 17 per cent of the highway-user taxes paid by all truckers and motorists, but their vehicles run up more than 30 per cent of the total road use accumulated by all automobiles and trucks.

> Almost 98 per cent of the trucks and automobiles in New Jersey are paying what they should pay, or more. It is the 2 per cent -- those trucks that weight more than about 18,000 pounds -- that are avoiding their rightful share.

The Meaning of These Inequities

Once the facts are understood, these inequities should make it apparent to New Jersey citizens that a simple increase in existing tax rates as the sole means of raising additional highway revenues would be unfair to 98 per cent of all the state's vehicle operators.

Any increase in existing tax rates, without an initial change in the overall tax structure, would perpetuate, if not actually compound, the unfairness that exists now.

A one-cent increase in the fuel tax, for example, would cost the average motorist 3½ cents per 100 ton-miles and the owner of the 30-ton tractor-semitrailer less than 1½ cents per 100 ton-miles. Why? Because, according to the U. S. Bureau of Public Roads, the trailer-truck gets almost three times as much ton-mileage per gallon of gas as the automobile.

An increase in present registration fees could be even more harmful. Fuel taxes may have some indirect relationship to vehicle weight and mileage, but registration fees have none.

In New Jersey, the license plates for a 40,000-pound truck cost $240 whether the truck is driven 5,000 miles a year or 50,000 miles a year.

And, because registration fee schedules are difficult to calculate properly, license plates always cost light vehicles more than heavy vehicles in terms of road use. License plates for a panel truck cost almost four times as much per 100 ton-miles as the plates for a 30-ton trailer-truck; and plates for the average automobile cost twice as much as those for the heavy truck, on the ton-mile basis.[24/]

The major flaw in registration fee systems, however, is their failure to cover through trucks that are registered out-of-state. An estimated 15,000 out-of-state trailer-trucks drive into or through New Jersey every day.[25/] These rigs pay nothing to New Jersey unless they buy fuel here; they are exempt from registration fees.

Out-of-state trucks must carry a large part of the responsibility for the

present condition of New Jersey's roads and should, therefore, carry at least some responsibility for the financing of improvements. They will contribute nothing if the only tax change effected is an increase in registration fees.

Road Damage

The need for equity in terms of highway use is not the only justification for an increase in the road taxes paid by heavy trucks. Equally important is the need for equity in terms of responsibility for road costs.

It is an accepted fact that heavy trucks damage roads. Likewise, it is an accepted fact that it costs more to provide roads and bridges for heavy trucks than for light trucks and automobiles.

Here are just a few of the statements made by recognized highway authorities pinning the blame of highway damage on the heavy trucks:

> William Van Breeman, research engineer, N. J. State Highway Department: "The increased truck traffic in New Jersey has accelerated highway deterioration to a marked degree."
>
> N. J. Society of Professional Engineers: "It is the considered judgement of this committee that certain highways in the State of New Jersey have been and are being severely damaged by the extremely heavy volume of motor truck traffic."
>
> The U. S. Bureau of Public Roads conducted a study of maintenance costs on several New Jersey highways, and reported: "Maintenance costs were from three to seven times more on roads with a greater amount of commercial traffic." 26/

In next-door Pennsylvania, where truck weight limits are considerably lower than in New Jersey, heavy trucks were said by former Gov. James Duff to be "causing a ration of deterioration on highways of 16-to-1 in comparison with motorists."

In New York, the State Association of County Superintendents said in a resolution favoring reduced truck weight limits, "Heavy trucks are pounding New York's road systems to pieces ... and ... forcing our road costs higher than good economy would warrant."

In Ohio, State Highway Director S. O. Linsell reported that he could build a highway for passenger cars at a cost of $100,000 a mile while the same highway to accomodate heavy trucks would cost $1,000,000 a mile.[27/]

Former U. S. Roads Commissioner Thomas H. MacDonald, nationally known as "Mr. Public Roads," has stated: "Damage has occurred on all types of high-type pavement. There is conclusive evidence that this damage is caused by heavy wheel loads."

The Maryland Road Test

Many officials of the New Jersey State Highway Department agree with the observations of these authorities because New Jersey participated in a scientific experiment which fully substantiated them.

This experiment was the Maryland Road Test, conducted in 1951 by the U. S. Bureau of Public Roads and the state highway departments of 11 states, including New Jersey. Representatives of the trucking industry also participated.

The test was designed to compare the road damage caused by trucks having different weights per axle. It is this axle weight -- the weight actually transmitted to the pavement -- that causes the damage. (Gross weight -- total weight of truck and load -- is not directly responsible for road damage, although it is responsible for bridge damage.)

The engineers compared single-axle loads of 18,000 and 22,400 pounds, and double, or tandem, the axle loads of 32,000 and 44,800 pounds.

Here are the official conclusions of that test:

1) The 22,400-pound single-axle load caused 6.4 times as much cracking as the 18,000-pound load, and,

2) The 44,800-pound tandem-axle load caused 12.3 times as much cracking as the 32,000-pound load.

What these conclusions mean as regards increases in truck weights is:

1) A 24 per cent increase in single-axle weight may cause a 550 per cent increase in road damage, and,

2) A 40 per cent increase in tandem-axle weight may cause an 1100 per cent increase in road damage.

The first conclusion in each of these paragraphs has special significance for New Jersey ... New Jersey allows trucks to weigh 22,400 pounds per axle.

This axle limit is the highest in the nation; only nine states, including New Jersey, permit it. The 18,000-pound ceiling is the law in 34 states.

(New Jersey's other weight limits: 32,000 pounds on a tandem axle, 60,000 pounds gross.)

This excessive axle limit merely strengthens the charge made by the President of the American Automobile Association, Ralph Thomas, at the Association's national convention last September: "If highways today did not have to be built to carry the heavy truck, but only to standards to carry the automobile, we could build tens of thousands more miles of improved highways than we are building today with the same amount of money."

And in recognition of this fact, the AAA convention unanimously recommended a weight-and-mileage tax on heavy trucks.

Weight-And-Mileage Taxes

Weight-and-mileage taxes serve two important functions:

1) They make heavy trucks carry a more reasonable share of the highway tax load, and,

2) They make out-of-state trucks contribute to the costs of the highways they use in each state.

In addition, they are fair to the trucking industry and they are productive.

There are four general types of weight-and-mileage tax currently in use:

1) Ton-mile tax (Kansas, Colorado, Wyoming, South Carolina and South Dakota).

2) Mileage tax (Michigan, Florida, New Mexico and North Dakota).

3) Axle-mile tax (Ohio and Alabama).

4) Weight-distance tax (New York and Oregon).

Each of these is distinct from the others.

Ton-Mile Taxes

A ton-mile tax is a tax on the product of a truck's tonnage and its mileage. The tax rate is the same for all vehicles, regardless of weight.

For example: Kansas has a ton-mile tax with a rate of one mill (0.1¢) levied on all trucks. A Kansas truck weighing 20 tons and driven 1,000 miles would have a ton-mileage of 20,000; its ton-mile tax would be 20,000 times one mill, or $20. Similarly, a 2-ton truck driven 10,000 miles also would have a ton-mileage of 20,000 and its tax would be $20.

Ton-mile taxes are difficult to administer and enforce because they have two constantly varying factors: weight and mileage. For the same reason, they are difficult and burdensome for the truckers to compute.

Ton-mile taxes also have very little relation to responsibility for highway costs (although they do have a direct relation to highway use). Two trucks with the same ton-mileage will pay the same tax, as shown above, but these same two trucks obviously will have entirely different effects upon the highway.

Mileage Taxes

A mileage tax is a tax on vehicle mileage. The tax rates increase according to broad weight categories.

For example: Michigan has a mileage tax, with the following rates on all trucks: one mill per mile for trucks weighing up to 11,000 pounds gross; 1½ mills for trucks weighing between 11,001 and 15,000 pounds, and 2 mills for all trucks weighing more than 15,000 pounds.

Under this schedule, a 10,000-pound truck would pay a tax of $1 on a 1,000 mile trip, a 15,000-pound truck would pay $1.50 for the same trip and any truck weighing more than 15,000 pounds and driven 1,000 miles would be taxed $2.

Mileage taxes are relatively easy to administer, enforce and compute.

Their major drawback is their lack of equity, due to the wide range of weights covered by each tax rate. The Michigan tax, for example, might cost a 20,000-pound truck 2.6 cents per 100 ton-miles and a 60,000-pound rig only 0.87 cents per

100 ton-miles.

In addition, mileage taxes have only a vague relation to highway-cost responsibility.

Axle-Mile Taxes

An axle-mile tax is a tax on vehicle mileage. The tax rates increase according to number of axles.

For example: Ohio has an axle-mile tax on all trucks and combinations with three or more axles. Tax rates range from half a cent a mile for three-axle trucks to $2\frac{1}{2}$ cents a mile for truck-and-trailer combinations; rates increase at approximately half a cent per axle. Vehicle weight is not a factor.

Under this levy, a 1,000-mile trip would cost a three-axle truck $10 and a truck-and-trailer combination $25. (The gross weights of these two vehicles might be 40,000 and 75,000 pounds.)

Axle-mile taxes are, like mileage taxes, relatively easy to collect and compute. Elimination of the weight factor, however, constitutes a serious drawback, since it eliminates the intensified weight-law enforcement which automatically accompanies enforcement of taxes based on weight.

Axle-mile taxes, because they put a premium on axles instead of weight, also may penalize efficient distribution of truck loads and thereby encourage some trucker: to eliminate axles while trying to carry the same loads. One big Ohio trucker who has already done this admits it will increase road damage. 28/

And, although the number of axles and the total weight of a truck generally rise together, axle-mile taxes cannot be said to have any direct relation to highway-cost responsibility.

Weight-Distance Taxes

A weight-distance tax is a tax on vehicle mileage. Tax rates increase at every weight interval of 2,000 pounds.

For example: New York has a weight-distance tax on all trucks and combinations weighing more than 18,000 pounds gross. Tax rates range from 6 mills per mile for trucks weighing 18,001-20,000 pounds to 24 mills for trucks weighing between 62,001 and 64,000 pounds; the average rate rise is about one mill per ton.

Under this schedule, a 20,000-pound truck driven 1,000 miles would pay a tax of $6 and a 63,000-pound rig driven 1,000 miles would pay $24.

Weight-distance taxes are easier to collect and compute than ton-mile taxes, not quite as easy to collect and compute as axle-mile or straight mileage taxes. However, their much greater equity recommends weight-distance levies over all these other mileage taxes.

And they have another definite advantage over all other forms of weight-and-mileage taxes: they are directly related to highway-cost responsibility.

It was a weight-distance tax that was introduced in the New Jersey legislature last year and is being recommended again this year.

The Weight-Distance Tax

The weight-distance tax is the only highway levy now in force that combines the two basic theories of highway taxation: highway use, and, responsibility for highway costs.

Derivation of Tax

The weight-distance tax is based primarily on the fact that it costs more to build and maintain roads for heavy vehicles than it does for light vehicles.

Oregon highway engineers developed the tax after analyzing, during a two-year survey, the various road costs brought on by vehicles of different weights.

The engineers determined the cost of providing facilities just for automobiles and light trucks. Then they began computing added costs brought on by heavier and heavier classes of trucks. The added costs were assigned to the added weight groups that necessitated them.

At the end of this so-called incremental study, the engineers could say with definite authority what proportion of the state's total road costs should be paid by each weight group of vehicles.

All they had to do then was assign to each weight group a per-mile tax rate that would produce the proper amount of money.

The Tax Rates

Here are the per-mile tax rates the Oregon engineers originally computed. These rates also were incorporated in the New York weight-distance tax and the tax introduced in the New Jersey legislature last year:

Vehicle Gross Weight	Tax Rate, Mills Per Mile	Vehicle Gross Weight	Tax Rate, Mills Per Mile
18,001-20,000	6.0	42,001-44,000	14.0
20,001-22,000	7.0	44,001-46,000	15.0
22,001-24,000	8.0	46,001-48,000	16.0
24,001-26,000	9.0	48,001-50,000	17.0
26,001-28,000	9.5	50,001-52,000	18.0
28,001-30,000	10.0	52,001-54,000	19.0
30,001-32,000	10.5	54,001-56,000	20.0
32,001-34,000	11.0	56,001-58,000	21.0
34,001-36,000	11.5	58,001-60,000	22.0
36,001-38,000	12.0	60,001-62,000	23.0
38,001-40,000	12.5	62,001-64,000	24.0
40,001-42,000	13.0		

According to this schedule, the 95-mile run from Newark to New Castle would cost the operator of a 20-ton rig $1.18.

This schedule meets the need for equity in two ways:

1) It requires groups of trucks to pay their rightful share of highway cost in terms of their responsibility for such costs, and,

2) It requires individual trucks to pay a more reasonable share of highway costs in terms of their individual highway use.

And, because it is levied on the heavier trucks only, it establishes a fair relation between the tax payments of heavy and light vehicles.

Who Pays It

The weight-distance tax covers practically all trucks and combinations with a maximum gross weight capacity of more than 18,000 pounds, including out-of-staters.

Thus it covers generally the heavy over-the-road trucks. This class of vehicles was described by the New York legislative committee which sponsored that state's weight-distance levy as the group "responsible primarily for truck-caused highway damages...which, more than any other, fails to pay a reasonably proportionate share of highway costs...and which, more than any other, benefits from the inequities in our current highway tax structure."[29/]

Farm trucks, government-owned trucks and certain road repair vehicles are exempt in New York and probably would be in New Jersey.

One of the most important potential taxpayers, especially as far as New Jersey is concerned, is the out-of-stater. Weight-distance taxes are not subject to reciprocity agreements and therefore do not have to be included in exemptions on other truck taxes normally granted to out-of-state trucks.

Since approximately half the big trucks driving over New Jersey's main highways are registered in some other state, they constitute a large number of taxpayers.

An estimated 34,000 New Jersey trucks -- about 17 per cent of all trucks registered in this state -- would be subject to the tax.[30/]

The trucks not subject to the tax -- all those weighing less than 18,000 pounds gross -- are made up almost entirely of two-axle trucks. Most of these are panel and pick-up trucks, used by local merchants, farmers, small private truckers, etc.

How It Is Paid

Truckers subject to the weight-distance tax are required to register their vehicles for the maximum gross weight the vehicles will attain, just as they do now when buying New Jersey license plates.

Each vehicle is given a tax identification plate, which is attached like a license tag. (It is this plate that enables the state to identify out-of-state trucks registered for the tax without having ports-of-entry.)

Truckers compute and pay their taxes each month (sometimes each quarter) according to the mileage of their vehicles on public roads within the state during the previous month. Nearly all truckers who would be subject to the tax now keep regular operating records to meet other tax and regulatory requirements; these records contain all the information needed to compute their weight-distance tax payments.

Administration and Enforcement

Enforcement consists primarily of audits of company records -- bills of lading, manifests, contracts, etc. These audits are made on a sampling basis similar to the audits of income tax returns. Examination of company records, which the companies keep as a standard practice, enables the state to calculate easily how much tax is due.

These audits are supplemented by extensive weighing of trucks to verify reported weights. New York, which did not own a single permanent weighing station when it enacted its weight-distance tax, now has 20 weighing stations strategically located throughout the state. These stations weighed more than 1,000,000 trucks in 1952 and detected more than 42,000 weight-law violations. (The previous year, when the State had no stations, only 800 weight-law violations were detected.)[31/]

Neither New York nor Oregon uses ports-of-entry, i.e., weighing stations on every highway entering the state, and there would be no need for New Jersey to use them, either.

New Jersey right now has enough weighing stations and scales in use or under construction to start immediate enforcement of a weight-distance tax.[32/]

Penalties for evasion of the tax are stiff enough to deter even the most determined violator. In New York, evasion carries a fine of 100 per cent of all back taxes, plus the back taxes with five per cent interest. And if a truck is caught weighing more than it is registered for, the correspondingly higher tax rate is made retroactive to the time the truck registered.

Collection Costs

The costs of collecting weight-distance taxes are no higher than the costs of collecting basic vehicle registration fees.

In Oregon, the total costs of administration and enforcement were only 5.3 per cent of revenues in 1951, according to Public Utilities Commissioner Charles Heltzel. "And it would have been even less" if Oregon's new rates, enacted in 1952, had been in effect, says Oregon's Gov. Paul L. Patterson.[33/]

In New York, where the tax has been operative only since May, 1952, total collection costs for the first full year of operation were approximately 10.6 per cent of revenues, according to New York's State Tax Commissioner, Edward H. Best. "Under normal operation," Best adds, "the cost of administration would represent 6.8 per cent of revenue collections. When the cost of weighing stations is added, the cost-of-collection ratio becomes 7.9 per cent."[34/]

The cost of operating the New Jersey Division of Motor Vehicles is higher than this -- it was expected to be slightly more than 8 per cent in 1953, according to Gov. Driscoll's 1953 budget message.

Nationally, according to the U. S. Bureau of Public Roads, the cost of collecting motor vehicle registration fees averages about 10 per cent.[35/]

Equity Of The Tax

The weight-distance tax, with the rates shown earlier, would make New Jersey's highway-tax structure considerably more equitable for the users of New Jersey's highways.

Here's what average vehicles would pay per 100 ton-miles after enactment of a weight-distance tax:[36/]

Vehicle	Loaded Weight	Present Taxes Per 100 Ton-Miles	Annual Weight-Distance Tax	Weight-Distance Tax Per 100 Ton-Miles	Taxes Per 100 Ton-Miles After Weight-Distance
Automobile	3,480 lbs.	19.70¢	-	-	19.70¢
Panel Truck	4,770 "	27.90¢	-	-	27.90¢
Stake Truck	14,850 "	14.37¢	-	-	14.37¢
Van Truck	26,750 "	10.47¢	$218.50	9.59¢	20.06¢
Tractor-Semi	44,800 "	7.89¢	457.50	8.80¢	16.69¢
Tractor-Semi	59,700 "	8.85¢	748.00	9.61¢	18.46¢

Trucks weighing more than 18,000 pounds account for 30.1 per cent of the total road use generated by all trucks and automobiles. Under the weight-distance tax, they would pay 28.7 per cent of the total taxes paid by all trucks and automobiles, instead of the 17 per cent they now pay.

There would still be inequities, especially since it appears that heavy trucks actually should pay more per 100 ton-miles than light vehicles because of their added responsibility for road costs. It might even be advisable to adjust the present schedule of registration fees to help create a better balance between the light and heavy vehicles.

But despite this shortcoming in the weight-distance tax, it is a certainty that New Jersey cannot even start to equalize its tax structure without it.

Productivity of the Tax

The tax would produce an estimated $10,400,000 annually from New Jersey trucks alone. It also would produce at least $4,000,000 a year from out-of-state trucks, and probably closer to $6,000,000.[37/]

Thus a weight-distance tax in New Jersey could be expected to raise the state's annual highway revenues by at least $14,000,000.[38/] (This is less than current revenues from the New York weight-distance levy.)

An Increase in the Fuel Tax

The revenues from the weight-distance tax are, admittedly, only a small part of the total additional highway revenues New Jersey must have over the next 10 years -- ideally, $143,000,000 in added income would have to be raised each year.

It seems apparent, therefore, that the state must follow up enactment of a weight-distance tax with reliance on some additional source of revenue.

The fairest and most practical supplement to the weight-distance tax would be an increase in the state's present motor fuel tax.

A one-cent rise in the current three-cent rate would produce at least $16,000,000 a year in added revenues, at practically no additional cost to the state.

Such an increase would cost the average motorist less than $5 a year, the average light-truck owner less than $10 a year. Certainly these highway users would be willing to pay this additional amount if assured they get better highways, streets and roads.

They would be willing, that is, if they also knew that New Jersey's tax structure were first being equalized, that they were not being called upon simply to increase the subsidies they are currently paying for the benefit of heavier vehicles.

But the gas tax certainly should not be increased unless it is to be used to help finance a legislated highway-construction program to cover at least a 10-year period.

With the weight-distance tax and the one-cent fuel tax increase, New Jersey's highway revenues would be boosted by more than $30,000,000 a year, enough to get a very good start on the improvement of our various road systems.

Distribution of Revenues

New Jersey's local governments have almost as serious road needs as the State Highway Department, and their financial problems are probably even greater.

Therefore, although revenues from the weight-distance and fuel taxes cannot be earmarked by existing laws, it would seem only fair that the legislature find some way of increasing state highway aid to local governments.

Perhaps a companion bill could accompany the weight-distance and fuel tax measures providing for an increase in state highway aid in 1955. Such a companion bill should propose an increase in total highway aid of at least $7,000,000 which would represent only a fraction of the added total revenues but would amount to almost half the present revenues for the local governments.

Support for Weight-Distance Tax

Weight-distance taxation comes highly recommended. It has been endorsed, on a national level, by such organizations as the American Automobile Association, the National Grange and the Council of State Governments. The former Commissioner of

the U. S. Bureau of Public Roads Thomas H. MacDonald, has given it his approval.

There is today a large bloc of supporters for a Weight-distance tax in New Jersey, and this group support has grown consistently.

Among these supporters are the following organizations: New Jersey Conference of AAA Automobile Clubs; N. J. State Grange; Cooperative Grange League Federation (GLF); N. J. League of Women Voters; N. J. Educational Association; N. J. State Tax Policy Commission; Associated Railroads of N. J.; Municipal Leagues of various counties, and, almost the entire New Jersey press.

The equalization of New Jersey's present highway-tax structure and the raising of urgently needed funds for highway improvement work are the responsibility of these groups and others like them. They are the ones who can most effectively express their opinions to their legislators. They are the ones who can combat the tremendous pressure exerted by truck lobbies and who can, finally, elevate and preserve the standard of New Jersey's highways.

And they should be the ones, because they are the people who benefit or suffer as our roads get better or worse.

13/ -- These estimates are based on predictions by the Highway Planning Division of future motor vehicle registrations. According to these predictions, total user revenues were assumed to increase at the same rate as motor vehicle registrations increased; over the period 1950-64, this average increase was 65.7 per cent.

14/ -- According to Division of Local Government, 1952 annual report, total road expenditures (excluding debt service) of counties and municipalities were $51,633,000 of which state highway aid accounted for only about $14,500,000, thus leaving more than $37,000,000 to be paid by local taxpayers.

15/ -- State highway aid in 1954 will total $15,975,000, according to Highway Finance Division; total local expenditures will be more than $56,000,000.

16/ -- See Note (13); average increase in vehicle registrations from 1952 to 1954 expected to be 11 per cent.

17/ -- From traffic section, Highway Planning Division, State Highway Dept.

18/ -- Tolls for passenger cars average more than one and a half cents a mile; at an average of 15 miles per gallon, this is the equivalent of a fuel tax of 26.72 cents per gallon.

19/ -- Tolls for the entire length average 87.24 cents per 100 ton-miles for automobiles, 14.12 cents per 100 ton-miles for four-axle tractor-semitrailers.

20/ -- Source: Highway Finance Division, State Highway Dept.

21/ -- Source: Annual report of the Division of Local Government. For 1954 estimates, please see Note (10).

22/ -- Detailed estimates of user-tax payments by selected average vehicles were made according to the following: registration data and gross weight data from the N. J. Motor Vehicle Division; mileage and gas consumption data from the N. J. Motor Fuel Tax Division, the State Tax Policy Commission, the U. S. Bureau of Public Roads and from similar road-tax surveys made in other states; unladen weight data from the U. S. Bureau of Public Roads, the Interstate Commerce Commission and other state surveys. All gross weights, fuel taxes and registration fees are for average vehicles within 6,000-pound ranges. All conclusions are, of course, estimated, but they are considered as accurate as can be made with the lack of available, detailed information on the subject of motor vehicle operations.

23/ -- "Survey of Road User and Property Taxes Imposed on Five Different Trucks by Each of the 48 States," by N. Y. State Joint Legislative Committee on Highways, Canals and Revenues, May, 1952; automobile taxes from survey by U. S. Bureau of Public Roads.

24/ -- Tax payments per 100 ton-miles based on conclusions of studies described in Note (22).

25/ -- Estimate based on number of trailer-trucks registered in New Jersey and on State Highway traffic count on Route 1 outside Newark showing 9,700 trailer-trucks in 24-hour period.

26/ -- C. F. Rogers, official of U. S. Bureau of Public Roads, quoted in Bulletin No. 9, American Association of Motor Vehicle Administrators, September, 1949.

27/ -- Quoted in Columbus, Ohio, Dispatch, March 12, 1953

28/ -- Quoted in Akron Beacon-Journal, July 5, 1953.

29/ -- From 1951 legislative report, N. Y. State Joint Legislative Committee on Highways, Canals and Revenues.

30/ -- Computed from registration lists of Division of Motor Vehicles.

31/ -- Quoted in N. Y. Times, September 8, 1953

32/ -- According to the State Police Division, New Jersey has 9 permanent weighing stations and 3 portable scales now in operation, and one more permanent station under construction; four of the permanent stations are manned around the clock.

33/ -- Heltzel quoted in letter dated March 15, 1952, to Citizens Tax Study Foundation; Patterson quoted in speech before American Automobile Association, September 10, 1953.

34/ -- Quoted in speech before National Association of Tax Administrators, June 19, 1953.

35/ -- From "The Ton-Mile Tax and Related Third-Structure Taxes," by the National Highway Users Conference.

36/ -- See Note (22).

37/ -- Revenues from out-of-staters probably would not amount to half the total revenues because heavy out-of-state trucks, while numerically representing half the heavy trucks in New Jersey, do not run up half the total road use of all heavy trucks.

38/ -- These revenues might be slightly reduced if heavy trucks began using the N. J. Turnpike considerably more than they are now. If this happened, the lessened damage to public roads probably would more than offset the loss in weight-distance revenues.